

What is claimed is:

1. A hydrodynamic bearing system, comprising:  
a shaft, said shaft further comprising an axial bore;  
a radial bearing portion radially supporting said shaft;  
at least one annular thrust plate fixedly mounted on said shaft; and  
a counter bearing corresponding to said thrust plate,  
wherein said axial bore extends from one shaft's end located outside  
said bearing system until a position corresponding to a desired  
position for said thrust plate, wherein a fixing element is inserted into  
said axial bore to fix said thrust plate to said shaft, and wherein an  
outer diameter of said fixing element is greater than a smallest inner  
diameter of said axial bore.
2. The hydrodynamic bearing system according to claim 1,  
wherein said fixing element is a sphere.
3. The hydrodynamic bearing system according to claim 1,  
wherein said fixing element is a cylindrical plug.
4. The hydrodynamic bearing system according to claim 1,  
wherein a peripheral surface of said fixing element is rounded in  
form.

5. The hydrodynamic bearing system according to claim 1, wherein a second end of said shaft is located within said bearing system and is tightly sealed therein.

6. The hydrodynamic bearing system according to claim 1, wherein said thrust plate is attached in a sliding fit, a transition fit or a press fit to said shaft.

7. The hydrodynamic bearing system according to claim 1, wherein said thrust plate is set at a right angle to a rotational axis of said shaft before said fixing element is inserted.

8. The hydrodynamic bearing system according to claim 1, wherein an inner diameter of said axial bore is equal to half the thickness of said thrust plate.

9. A method of manufacturing of a hydrodynamic bearing system, comprising the steps of:

forming an axial bore inside a shaft;

arranging a thrust plate into a desired position on said shaft at a precise right angle to a rotational axis of said shaft; and

pressing a fixing element into said axial bore of said shaft such that the diameter of said shaft expands in said desired position firmly fixing said thrust plate to said shaft,  
wherein said axial bore extends from one shaft's end located outside said bearing system until a position corresponding to said desired position for said thrust plate.